

What is claimed is:

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1 1. A virus, microorganism, cell, plant, or animal, wherein said virus, microorganism,
2 cell, plant, or animal is the product of an insertion of a gene expression vector
3 including a DNA that encodes a IIM protein sequence into a host such that said
4 virus, microorganism, cell, plant, or animal is capable of expressing said IIM
5 protein in a functional form.

1 2. The microorganism of claim 1 wherein said host is *Escherichia coli*.

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1 3. A recombinant DNA sequence comprising a DNA sequence that codes for an IIM
2 protein.

1 4. A recombinant DNA sequence of claim 3, wherein the nucleic acid sequence of said
2 recombinant DNA is selected from the group consisting of

3 a) a cDNA sequence as shown in SEQ. ID. No. 1; and

4 b) a cDNA sequence as shown in SEQ. ID. No. 2.

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1 5. A recombinant DNA sequence of claim 3, wherein said IIM protein has an amino
2 acid sequence selected from the group consisting of:

3 a) an amino acid sequence as shown in SEQ. ID. No. 3; and

4 b) an amino acid sequence as shown in SEQ. ID. No. 4.

1 6. A method of producing a IIM protein or peptide comprising:

2 a) transforming a host cell with an expression vector comprising a
3 promoter operatively linked to a nucleotide sequence which
4 codes for a predetermined protein or peptide of a IIM protein;

5 b) culturing said host cell under conditions such that said IIM protein is
6 expressed in recoverable quantity;

7 c) lysing said host cell; and

8 d) recovering said IIM protein.

1 7. A gene expression vector containing a recombinant DNA sequence encoding a
2 *Trichoplusia ni* IIM protein sequence.

1 8. A expression vector of claim 7, wherein said expression vector is a recombinant
2 plasmid adapted for insertion into and transformation of bacteria.

1 9. The method of claim 6 wherein said transfer molecule is glutathione-S-transferase.

1 10. An expression vector of claim 7, wherein said expression vector is a recombinant
2 plasmid adapted for insertion into and transformation of a plant..

1 11. A fusion protein that includes a first protein linked to a second protein that
2 comprises at least a functional domain of a *Trichoplusia ni* IIM protein.

1 12. A substantially pure preparation of a IIM protein polypeptide.

1 13. A microorganism, cell, plant, or animal, wherein said microorganism, cell, plant, or
2 animal is the product of an insertion of a gene expression vector including a
3 DNA into a host, wherein said DNA encodes an antibody that binds to an IIM
4 protein sequence such that said microorganism, cell, plant, or animal is capable
5 of expressing said antibody directed against said IIM protein in a functional
6 form.

1 14. The microorganism, cell, plant, or animal of claim 13, wherein said antibody
2 specifically binds to a chitin binding region of said IIM protein.

1 15. An antibody produced by the microorganism, cell, plant, or animal of claim 13.

1 16. A purified and isolated antibody that specifically binds to an IIM protein.

1 17. The antibody of claim 16, wherein said antibody specifically binds to a chitin
2 binding region of said IIM protein.

1 18. A recombinant DNA molecule comprising a nucleotide sequence which codes for a
2 fusion protein that includes a first protein linked to a second protein that
3 comprises at least a functional chitin binding domain of a *Trichoplusia ni* IIM
4 protein.

1 19. A method of protecting a plant against an insect pest that includes an IIM protein in
2 said insect pest's midgut, comprising:

3 a) transforming a microorganism, cell, plant, or animal, wherein said
4 microorganism, cell, plant, or animal is the product of an
5 insertion of a gene expression vector including a DNA into a
6 host, wherein said DNA encodes an antibody that binds to an
7 IIM protein sequence such that said microorganism, cell, plant,
8 or animal is capable of expressing said antibody directed against
9 said IIM protein in a functional form; and

10 b) placing said transformed microorganism, cell, plant, or animal in an
11 environment that includes a plant to be protected and said insect
12 pest such that said insect pest is likely to come into contact with
13 said expressed antibody that binds to an IIM protein sequence.

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